REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Status of the Claims

Claims 1-8, and 10-15 are amended. No new matter is added. Claims 1-20 are pending.

Claim Rejections – 35 USC §112

Claims 1-20 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. In particular, the Office Action of February 20, 2008 states that "two steps whereby the laser frequency of the first step compared to the second step is critical or essential to the practice of the invention, but not included in the claims are not enabled.

Amended claim 1 recites the laser frequency of the second step being higher than the laser frequency of a first step and the laser frequency of the second step is less than 100 times the laser frequency of the first step. In particular, the specification discloses first and second step frequencies in Table I. (Original Specification; page 6) The claim is directed to embodiments where the second step laser frequency is less than 100 times the laser frequency of the first step. There are multiple embodiments that are enabled the amended claim features.

Therefore claim 1 is compliant with the requirements of 35 U.S.C. 112, first paragraph.

Claims 2-15 are rejected 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 is amended to remove the objected term "smaller". Claim 3 is amended to recite, a method further providing the laser beam with a power of greater than 400 mJ. Claims 4 and 5 are amended to recite, among other features, "a temperature of the single-

crystal substrate", thus satisfying the antecedent basis requirement. Claims 6-11, as amended, recite among other features, "a gas pressure" and claims 12-15 as amended recite "an atmosphere", thus satisfying the antecedent basis requirement. Claim 6 is amended and is no longer a duplicate of claim 9.

Therefore claims 2-15 are compliant with the requirements of 35 U.S.C. 112, second paragraph.

Claim Rejections – 35 USC §102

Claims 1-2 are rejected under 35 USC §102(b) as being anticipated by JP 04-212,214. This rejection is respectfully traversed. Anticipation under § 102 can be found only when the reference discloses exactly what is claimed. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985), MPEP 2131.03.

Claim 1, as amended, among other features recites, the laser frequency of the second step being higher than the first step and less than 100 times the laser frequency of the first step. JP 04-212,214 fails to teach suggest or render predictable, having a higher laser frequency in the second step than the first step and the higher frequency being less than 100 times the laser frequency of the first step.

Instead, JP 04-212,214 discloses a laser deposition method in which the deposition rate is set low during the initial stage and increased afterward. JP 04-212,214 discloses varying the deposition rate instead of the laser frequency. An example in JP 04-212,214 discloses a laser frequency of 1 Hz and a second laser frequency of 100 Hz, however this example fails to disclose a second laser frequency less than 100 times the frequency of the first step.

In particular, JP 04-212,214 "teaches a value or range that is very close to, but does not overlap or touch, the claimed range does not anticipate the claimed range." (MPEP 2131.03 (III)) Therefore, JP 04-212,214 fails to anticipate claim 1. Thus claim 1 is believed to be allowable. Claim 2 depends from claim 1 and is believed to be allowable for at least the same reasons claim 1 is believed to allowable.

Furthermore, claim 2 is amended to recite among other features,

> the laser frequency of the second step is not less than 2 times and not more than 40 times as high as the laser frequency of the first step in a case where the laser frequency of the first step is greater than or equal to 1 Hz and less than 20 HZ; and the laser frequency of the second step is not less than 2 times and not more than 5 times as high as the laser frequency of the first step in the case where the first laser frequency is 20 Hz.

JP 04-212,214 fails to teach, suggest or render predictable the above recited features of claim 2. The ranges recited in claims 2 lead to high critical current densities as shown in Table I of the Original Specification and JP 04-212,214 does not disclose the above feature. Thus JP 04-212,214 fails to anticipate claim 2. Therefore claim 2 is believed to be allowable.

Claim Rejections – 35 USC §103

Claims 3-20 are rejected under 35 USC §103(a) as being unpatentable over JP 04-212,214. This rejection is respectfully traversed because i) JP 04-212,214 fails to teach, suggest or render predictable features of claims 3 - 20, and ii) features of claims 3 - 20 are of a critical nature and create new unexpected results.

i) JP 04-212,214 Fails to Teach, Suggest or Render Predictable Features of Claims 3 – 20.

Claims 3-20 depend directly or indirectly from claim 1, and thus incorporate each features of claim 1. JP 04-212,214 fails to teach, suggest or render predictable features of claim 1 as discussed above. Thus claims 3-20 are believed to be allowable for at least the reasons claim 1 is believed to be allowable. Moreover, the Office Action of February 20, 2008 admits that JP 04-212,214 fails to teach the claimed power, substrate temperature, gas pressure and atmosphere. Thus one of ordinary skill in the art would not through routine experimentation ascertain the features of claims 3-20. Therefore, claims 3-20 are believed to be allowable for at least the reasons stated above.

ii) Features of claims 3 - 20 are of a Critical nature and Create New Unexpected Results.

Embodiments of the present invention relate to a method of producing an oxide superconducting film on a single-crystal substrate. The process forming an oxide superconducting film can generally be divided into two steps. In embodiments, of the present invention various ranges for power, temperature of the substrate, gas pressure and gases are disclosed. (Original specification; Tables I to V and Figure 4).

Regarding claims 3, as shown is Table II providing a laser power above 400 mJ leads to higher critical current densities such as between the range of 1.5 MA/cm^2 – 4.0 MA/cm^2. JP 04-212,214 discloses a critical current density of only 0.41 MA/cm^2. Thus the claimed feature of providing laser power above 400 mJ leads to unexpected results in the technical field where an increase in the critical current density up to 10 times has a great significance to a person skilled in the art.

Regarding claims 4 and 5, as shown in Table III providing a substrate temperature of greater than or equal to 600 °C to up to 1200 °C leads to higher critical current densities such as between the range of 1.8 MA/cm^2 – 4.0 MA/cm^2. JP 04-212,214 discloses a critical current density of only 0.41 MA/cm^2. Thus the claimed feature of providing a substrate temperature of greater than or equal to 600 °C to up to 1200 °C leads to unexpected results in the technical field where an increase in the critical current density up to 10 times has a great significance to a person skilled in the art.

Regarding claims 6 and 8, as shown in Table IV providing gas pressure within the range of 1.33 Pa to 100 Pa results in a higher critical current densities such as between the range of 1.1 MA/cm^2 – 4.0 MA/cm^2. Thus the claimed feature of providing gas pressure within the range of 1.33 Pa to 100 Pa leads to unexpected results in the technical field where an increase in the critical current density up to 10 times has a great significance to a person skilled in the art.

Similarly, regarding claims 7 to 11, as shown in Table IV providing gas pressure within the range of 1.33 Pa to 66.66 Pa results in a higher critical current densities such as between the range of 1.2 MA/cm^2 – 4.0 MA/cm^2. Thus the claimed feature of providing gas pressure within the range of 1.33 Pa to 100 Pa leads to unexpected results in the technical

field where an increase in the critical current density up to 10 times has a great significance to a person skilled in the art.

Regarding claims 12-15, as shown in Table V the critical current density of up to 4.0 MA/cm^2 can be achieved when the type of gas used is Oxygen. Thus resulting in unexpected results of up to 10 times greater than JP 04-212,214.

Therefore due to the critical nature of each of the numerous parameters discussed in the original specification and the unexpected results achieved due to the claimed values of these parameters, the claimed invention could not be obvious to one of ordinary skill in the art.

Conclusion

After amending the claims as set forth above, claims 1-20 are pending.

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested. The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by the credit card payment instructions in EFS-Web being incorrect or absent, resulting in a rejected or incorrect credit card transaction, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741.

If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

Date May 20, 2008

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